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AUTHOR Sampson, James P., Jr.
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ABSTRACT

This paper discusses the use of the Internet to enhance test selection, orientation, administration, and scoring. It begins with a review of potential Internet applications in these test areas. Also addressed are difficulties that may be encountered by counselors who use the Internet for testing and issues associated with using the Internet to deliver resources and services. The use of the Internet to deliver assessment resources and services may help or hinder the assessment process. Internet delivery of valid resources and effective services is dependent on careful research and development by assessment professionals. Practitioners need preservice and inservice training to maximize the potential problems. Professional associations need to keep pace with the evolution of the Internet in order to provide test developers and counselors with realistic standards to guide practice. Although assessment practice may be changing as a result of the Internet, existing principles of valid test development and practice can be used as a good starting point in shaping the application of this technology to assessment resources and services. (MKA)

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Using the Internet to Enhance Test Selection, Orientation, Administration, and Scoring

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by
James P. Sampson, Jr.

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James P. Sampson, Jr. is Professor and Co-Director of the Center for the Study of Technology in Counseling and Career Development at Florida State University. Appreciation is expressed to Janet Lenz, Robert Reardon, and Sandra Sampson for their comments on initial drafts of this paper. Correspondence should be addressed to James P. Sampson, Jr., University Center, Suite A4100, Florida State University, Tallahassee, FL, 32306-2490, (850) 644-2490 (voice) 644-3273 (FAX), jpsampso@garnet.acns.fsu.edu, www.aus.fsu.edu/techcntr/

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Using The Internet to Enhance Test Selection, Orientation, Administration, and Scoring

The Internet has substantially improved access to computing resources. As a result, individuals could more easily access assessment resources in organizations, agencies, and institutions as well as the home. Practitioners could deliver Internet-based assessments to their clients and integrate the data obtained into the counseling process. Individuals in their place of residence could access Internet-based self-assessments that are designed to function on a self-help basis. The capability of the Internet to facilitate communication among practitioners and clients and to provide links to additional resources and services has the potential to further enhance the contribution of assessment to individual problem solving and behavior change.

Current testing standards (AERA, APA, NCME, 1985; Joint Committee on Testing Practices, 1988; & AMECD, 1989) and assessment competency statements (Garfield & Prediger, 1994) describe principles of effective and responsible test use. These standards and competency statements contain common elements of the assessment process. These common elements include test selection, administration, scoring and interpretation, as well as effective communication with test takers and parents or guardians (in the case of minors). In practice, these testing elements can be sequenced into the following five phases:

- selection
- orientation
- administration
- scoring
- interpretation

The focus of this paper will be on using the Internet to enhance test selection, orientation, administration, and scoring. Refer to Sampson (1998a) for an exploration of the use of the Internet in test interpretation. This paper begins with a review of potential Internet applications in test selection, orientation, administration, and scoring and concludes with issues associated with using the Internet to deliver these assessment resources and services. All of the applications described in this paper can be accomplished with technology that is currently available.

Internet Applications in Test Selection

The assessment process begins with test selection. Obtaining and using information is a key element in the test selection process (Joint

Committee on Testing Practices, 1988; Mehrens, 1994; Prediger, 1994). Counselors need to clarify the purpose of assessment for their clients and then identify instruments that are likely to measure constructs related to clients' needs. From the instruments identified, counselors need information on the technical quality of the measures (reliability, validity, norms, interpretive resources, and appropriateness for various client populations) in order to select the best assessment for the client. These tasks, however, are becoming increasingly difficult as the number of instruments available and the accumulated information about instruments expands. Information must be obtained from numerous individual sources that can often be difficult to locate. When the information is obtained, the sheer overwhelming amount of data can be a disincentive to thoughtful test selection. The Internet can be used to help counselors more efficiently identify and obtain information relevant to test selection. An important advantage of the Internet over print-based media is that the Internet can be updated on a daily basis as new information becomes available. Print media containing perishable data are often out-of-date before publication.

Information relating client assessment needs with potential instruments could be delivered to qualified practitioners via password-protected Internet web sites. A data base of measures could first be searched by constructs that relate to identified client assessment needs. Potential measures could be subsequently matched on various categories including: norm groups, language, readability, the availability of specific technical information, administration time, administration format, scoring options, interpretive resources, cost, etc. After a reasonable number of alternatives are identified, brief standardized descriptions of each measure could be downloaded to the practitioner. Links to published test reviews would provide the practitioner with independent judgments of test quality. The data could also be cross-referenced by literature sources describing the reliability, validity, and utility of each measure for various populations and settings, which may be especially valuable in determining if a measure is appropriate for a specific client population. Links to test publishers would allow practitioners to download specimen sets or sample interpretive reports. Expert systems, similar to the type used in making prescription drug recommendations to physicians, could be added to web site functioning to better integrate the existing research literature

with the judgment of experts to aid practitioners in selecting tests for a specific population. In situations where a collaborative approach to test selection is used, the practitioner would have the option of using e-mail to forward descriptive material or sample interpretive reports from a small number of appropriate measures to prepare the client for an informed choice of assessments. Similarly designed public access web sites could allow individuals to select self-assessment measures appropriate for their needs. Links to test publishers would then allow administration of tests to the individual via the publisher's web site.

Collecting and maintaining information for delivery on a well designed, easy to use web site requires a steady source of adequate funding. Test selection web sites can be funded in a variety of ways. Practitioners or organizations could pay a subscription fee to obtain unrestricted access to a password-protected web site for a specified length of time. Professional associations could offer access to a password-protected web site as a benefit of membership. Consortia of test publishers could offer free access to qualified practitioners to such a web site in order to promote visibility of available measures.

The capability of the Internet to foster communication offers several possibilities to enhance test selection. Moderated mailing lists allow individuals with common interests to easily communicate with each other (Offer & Watts, 1997). Moderated mailing lists organized around specific client populations or settings can be used by practitioners to obtain anecdotal information about other practitioners' use of a measure with a particular client population in a specific setting. Moderated usenet news groups or bulletin board discussion groups associated with specific tests can be used by practitioners to obtain answers to specific questions about the appropriateness of assessments for specific client populations and needs. E-mail and videoconferencing can be used to address specific test selection questions to test authors and publishers. The same technology can be used to communicate with geographically remote consultants who have expertise on the assessment of a specific population. E-mail and videoconferencing can be used to communicate with an off-site supervisor (Casey, Bloom, & Moan, 1994) regarding the selection of an assessment for a particular client. Finally, e-mail and videoconferencing could be used to contact practitioners when individuals are having difficulty in using self-help web sites to

select an appropriate self-assessment to meet their needs.

Internet Applications in Test Orientation

Once a test has been selected, it is important that the test-taker or the test-taker's parents or guardians be appropriately prepared for the assessment process. An effective test orientation can contribute to test validity by maximizing the likelihood that the client follows the standardized test administration procedure. This may be especially important in remote locations where a psychometrist or other trained staff member is not available to ensure that standardization procedures are followed during test administration. An effective test orientation can also contribute to counseling outcomes by helping the client understand how insight obtained from the interpretation of test data potentially contributes to decision making and behavior change. Finally, a good test orientation can challenge common assessment myths, e.g., tests provide "magical" answers to problems.

Internet web sites developed by practitioners, organizations, or test developers could be used to deliver orientation information to the test-taker or the test-taker's parents or guardians via computer-assisted instruction modules or simple links to frequently asked questions (FAQ's). Describing the purpose of assessment in counseling can be theory-based (Sampson, 1986) or atheoretical. Providing a theory-based description of the purpose of assessment allows an individual practitioner to provide the client with a schema for assessment that is congruent with schema used for the counseling process. A more generic atheoretical description of the purpose of assessment presented by an organization or test publisher web site could be used by a wider range of clients. The web site could also provide information on the nature of assessment tasks, the process of test administration, scoring, and interpretation, and how the test results will be used and reported (AMECD, 1989), as well as information on the rights of test takers and the confidentiality of test data (Joint Committee on Testing Practices, 1988). E-mail and videoconferencing can be used to contact practitioners when individuals are confused about the orientation information they have received. Practitioners still have the option of providing additional orientation information that relates to specific client needs. Orientation data for self-assessments should include a description of the

circumstances where counseling assistance may be needed, as well as clarifying the purpose, process, and potential misconceptions of testing.

Internet Applications in Test Administration

After completing test orientation, clients can access tests for administration from a password-protected web site maintained by the test publisher. Individuals can access self-assessments from free self-help web sites by simply completing a link. Access to fee charging self-assessment web sites will require prepayment by either an individual or a sponsoring organization, e.g., an employer. E-mail and videoconferencing could be used to contact practitioners when clients experience difficulty in completing a test.

Administering assessments via the Internet has both advantages and disadvantages. Remote test administration potentially increases the number of individuals and clients who can receive assessment services by removing the barrier of transportation to the test administration site, e.g., individuals who live in remote geographic areas, individuals who lack access to transportation or child care, or individuals with a disability where mobility is difficult. However, test administration in remote locations (such as the client's place of residence) reduces control over the test environment and potentially compromises test standardization. This is especially problematic for aptitude, achievement, intelligence, and neurological assessments. The RUST Statement (AMECD, 1989) indicates that counselors have a responsibility to ensure that the testing environment and psychological climate are conducive to good test performance and that an observation and recording of factors likely to compromise testing is completed. In a remote setting, the counselor cannot determine if environmental factors (distractions) or psychological factors (having someone read and comment on test responses during administration) has compromised the validity of the assessment. Also, there is no psychometrist or staff member to observe and record any deviation from standardized test administration procedures. While test orientation can be used to stress the importance of following a standardized test administration procedure and avoiding factors that might confound test results, there is no guarantee in a remote location that recommendations are followed. Research is needed to better understand the potential scope of this problem and to suggest potential solutions.

The graphic capability of the World Wide Web makes it possible to use visual images, in addition to traditional text, in the presentation of test items. Visual images can be useful in assessment situations requiring manipulation of information, such as card sorts. The use of visual images in test items can also be useful in assessing individuals with limited reading ability. The presentation of visual images in assessment is not without limitations. In addition to the potentially higher cost of developing visual items, there is a danger that the test taker will react to irrelevant data in the visual image, e.g., the actor seen in the visual image closely resembles an abusive parent or spouse.

Internet Applications in Test Scoring

After the test is administered on the Internet, test scoring is completed immediately and the process continues with test interpretation. Within the context of counseling, a counselor is available to explain any questions a client may have regarding test scoring. Given that no counselor is available in a self-help, self-assessment situation, care needs to be taken that the scoring process does not create confusion or perceptions that "magical" answers are possible from testing. In particular, self-assessment measures should avoid "black box" scoring where it is impossible for the test taker to determine how the test results were obtained. It should be clear to the test taker how items relate to scales and how scale scores relate to the test interpretation.

Issues Associated with Internet Use in Test Selection, Orientation, Administration, and Scoring

Using the Internet as a resource for test selection, orientation, administration, and scoring may result in improved access to higher quality assessments. However, the potential benefits of using this technology may be nullified due to the following five issues.

1. Assessments designed to be mediated by a practitioner may be placed on the Internet, allowing individuals inappropriate access to a previously restricted resource. Individuals may select inappropriate tests for their needs, misunderstand the nature and functioning of the assessment, or improperly administer the assessment in the absence of assistance from a qualified practitioner. Also, Internet-based test delivery may not produce

- equivalent results in comparison with traditional administration. NCDA standards (1997) state that the delivery of counselor-mediated measures on the Internet without practitioner intervention is inappropriate unless Internet-based validation data are available.
2. At present, it is uncertain how relationship development in the counseling process will be influenced by videoconferencing (Sampson et al., 1997; Sanders & Rosenfield, 1998). Preliminary evidence suggests that videoconferencing has a differential impact on communication in comparison with face-to-face interactions (Oravec, 1996). Research is needed to determine if there is any negative impact on the process of test selection and orientation when videoconferencing is used to deliver this aspect of counseling services.
 3. Concerns have been raised that various ethical issues will compromise the effectiveness of Internet-delivered counseling resources and services. Identified ethical issues include confidentiality, invalid information delivery, inadequate counselor intervention, lack of counselor awareness of local circumstances where a client is located, limited access to the Internet by individuals with low incomes, and privacy required for counseling (Bartram, 1997; Offer & Watts, 1997; Robson & Robson, 1998; Sampson, 1998b; Sampson et al., 1997). Portions of these concerns have been addressed in existing ethical standards adopted by the American Association for Counseling and Development (1988), the National Board for Certified Counselors (1989), the National Career Development Association (1991), and the American Psychological Association (1986). A more comprehensive treatment of these concerns is included in recently adopted Internet resource and service delivery standards from the National Board for Certified Counselors (1997) and the National Career Development Association (1997).
 4. Questions have also been raised regarding interstate and international regulation of Internet-based resource and service delivery by counselors when the client is located in a different state or country (Bartram, 1997; Sampson et al., 1997). Also, the lack of consumer awareness of professional credentialing may encourage unqualified persons to offer invalid assessment information and services.
 5. Practitioners may not be acquiring the knowledge and skills necessary to effectively deliver Internet-based assessment information and services due to the rapid evolution of the Internet. Practitioners need general Internet knowledge and skill, as well as supervised experience in using the Internet as an assessment resource.

Conclusion

The use of the Internet to deliver assessment resources and services may help or hinder the assessment process. Internet delivery of valid resources and effective services is dependent on careful research and development by assessment professionals. Practitioners need preservice and inservice training to maximize the potential of the Internet and to avoid potential problems. Professional associations need to keep pace with the evolution of the Internet in order to provide test developers and counselors with realistic standards to guide practice. While assessment practice may be changing as a result of the Internet, existing principles of valid test development and practice can be used as a good starting point in shaping the application of this technology to assessment resources and services.

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